GERRIS REMIGIS SAY IN A UNIQUE WINTER ENVIRONMENT (HEMIPTERA-HETEROPTERA: GERRIDAE)[1]

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ABSTRACT: Adult *Gerris remigis* Say (Hemiptera: Heteroptera) may accumulate day degrees within rock crevices along edges of limestone hot spring beds.

Gerris remigis Say, widely distributed throughout North America, ranges south to Mexico and Guatemala (Drake and Harris 1934). It is commonly found in lentic habitats having water temperatures below 10°C (Calabrese 1977). Spence et al. (1980) proposed that waterstriders belonging to the genus *Gerris* Fabricius exhibit submergence behavior to accumulate day degrees in the spring. In this way the waterstriders reach the threshold for reproductive maturation (gametogenesis) more quickly than they would if they accumulated day degrees only in the colder air environment (Spence et al. 1980).

Limestone hot spring beds (Fig. 1) in Huntsdale, Pennsylvania, visited on 19 February 1982, contained large populations of *Gerris remigis* (aggregations of 20-40 individuals per 20 sq. m bed). The air temperature was 4°C; the water temperature was 15°C.

Water temperature varies only between 12°C and 15°C throughout the year[4] in the limestone beds, and the waterstriders remain active throughout the year (pers. comm., Paul Biebel, phycologist who conducts research in the area).

Further observation of the populations on 26 February 1982 revealed that adults were moving in and out of crevices in the limestone beds (Fig. 2). We suggest that the *G. remigis* adults were accumulating day degrees within the rock crevices, another means of increasing reproductive rate. (No submergence behavior was observed.)

Some reproduction must have gone on while the air temperature was very low because a second instar was collected on 19 February 1982.

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[4]Huntsdale Fish Cultural Station, brochure, The Pennsylvania Fish Commission

Adults taken into the laboratory and dissected were found to be reproductively mature. It has been shown that although the optimum temperature for growth in *G. remigis* is 22°C., the threshold temperature is only 12.6 C. (Jamieson 1973).

Tipulids and chironomids emerging in large numbers at the site probably serve as a food source for the gerrids.

Fig. 1. Limestone Bed at Huntsdale, Pa.

Fig. 2. Crevices in limestone at Huntsdale, Pa.

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